



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,616	12/21/2001	Gundu M. Sabde	150.0110 0101	6755
26813	7590	07/13/2005	EXAMINER	
MUETING, RAASCH & GEBHARDT, P.A. P.O. BOX 581415 MINNEAPOLIS, MN 55458			MCDONALD, SHANTESE L	
			ART UNIT	PAPER NUMBER
			3723	

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/028,616

Applicant(s)

SABDE, GUNDU M.

Examiner

Shantese L. McDonald

Art Unit

3723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 21 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-33 and 35-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 39-41 is/are allowed.
- 6) ☐ Claim(s) 1-33, 35-38 and 42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/21/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-33, 35-38 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Russel et al. as modified by James et al. and further in view of Sachan et al. (WO 01/44396)

Russell et al. teaches a planarization method comprising positioning a Group VIII metal-containing surface, which is elemental platinum and a platinum alloy, (col. 3, lines 33-38), of a substrate, the substrate being a wafer, to interface with an abrasive article and supplying a planarization composition which comprises an oxidizing agent, (col. 5, line 20). Russell et al. also teaches providing a wafer having a patterned dielectric layer formed thereon and a Group VIII metal-containing layer formed over the patterned dielectric layer, (col. 1 line 57-col. 2, line 22), and the removal of material from the Group VIII metal-containing surface having a non-planar topography is greater than an underlying oxide layer, (col. 1, lines 57-60). Russell et al. teaches all the limitations of the claims except for the abrasive article being a fixed abrasive article comprising a plurality of abrasive particles which are CeO₂ having a hardness no greater than about 6.5 Mohs dispersed within a binder adhered to at least one surface of a backing

material, the Group VIII metal being present in an amount of about 10, 20 or 50 atomic percent or more and the Group VIII surface being removed relative to the dielectric layer at a ration of at least 10:1. James et al. teaches an abrasive article being a fixed abrasive article comprising a plurality of abrasive particles which are CeO_2 having a hardness no greater than about 6.5 Mohs, (col.5, lines 40-45) dispersed within a binder, (col. 10, lines 13-31), adhered to at least one surface of a backing material, (col. 13, lines 1-4). James et al. teaches that polishing can be performed with free abrasives in a polishing fluid and a polishing pad devoid of fixed abrasives, (col. 2, lines 30-33), and also with a fixed abrasive pad, with a polishing solution, free of abrasives.

Sachan et al. also teaches polishing a Group VIII metal containing surface of a wafer, using a fixed abrasive polishing pad, (pg. 8, lines 24-25) which comprises CeO_2 having a hardness no greater than about 6.5 Mohs, (pg. 4, lines 1-6),

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the pad of Russell with the fixed pad, as taught by James et al. and Sachan et al. in order to enhance the planarizing capabilities, and to minimize scratches and defects in the metal.

It would have been further obvious to provide the method of Russell with the Group VIII metal being present in an amount of about 10, 20 or 50 atomic percent or more dependant upon the substrate type, and the Group VIII surface being removed relative to the dielectric layer at a ration of at least 10:1, in order to control the removal rate, since it has been held that where the general conditions of a claim are disclosed in

the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Allowable Subject Matter

Claims 39-41 are allowed.

Response to Arguments

Applicant's arguments filed 4/21/05 have been fully considered but they are not persuasive.

The applicant argues that there is no motivation to combine the Russell et al., James et al. and Sachan et al. references. The Examiner disagrees. The Russell reference teaches planarizing a noble, or Group VIII, metal containing surface with an abrasive article and supplying an oxidizing agent. Russell also teaches that the chemical mechanical polishing process provides an enhanced material removal rate from high points on the surface of the substrate, as compared to recessed areas, (col. 4, lines 48-50). It is an old and well known fact in the art, and James et al. teaches that chemical mechanical polishing can be performed with an abrasive slurry along with an abrasive free polishing pad, or with a fixed abrasive polishing pad, along with an abrasive free slurry. The Sachan reference teaches planarizing a Group VIII metal containing surface using a fixed abrasive polishing pad, which comprises cerium oxide having a hardness of no greater than about 6.5 mohs, (pg. 4, line 13 and pg. 8, lines 24-25).

The Russell reference is silent about polishing the Group VIII metals using a fixed abrasive polishing pad, but the James reference teaches chemical mechanical

polishing using a fixed abrasive pad, and a pad free of abrasives, and the Sachan reference teaches polishing a Group VIII metal with a fixed abrasive polishing pad. Since the above cited references teach polishing the claimed substrate materials using the claimed polishing materials, it is assumed that they too will result in reduced smearing and defect formation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shantese L. McDonald whose telephone number is (571) 272-4486. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Hail can be reached on (571) 272-4485. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S.L.M.
June 29, 2005



Joseph J. Hail, III
Supervisory Patent Examiner
Technology Center 3700